tical details of how to perform the assays are presented in a series of chapters which include information on selection and purification of the relevant enzymes, preparation of enzyme-macromolecule conjugates, conjugation of haptens, and binding of immunoreactants to solid phases. Methods for analysis of data are discussed, and possible toxic hazards are emphasized. Also included are 'background' chapters summarising basic immunological concepts and methods for production of antibodies (including monoclonal antibody techniques), as well as methods for purification of antibodies and preparation of Fab' fragments. In addition, the volume contains chapters on the related topics of immunoblotting and enzyme immunohistochemistry. A useful index is provided, and the text is extensively referenced up to the end of 1984.

Enzyme immunoassay is frequently the method of choice for a wide range of different analytical purposes, so it is now not uncommon for workers wishing to develop and use such assasys to have little or no prior experience of immunoassay methods, or even an understanding of basic immunology. Presumably the 'background' chapters have been included with such readers in mind. While their inclusion certainly makes the text self-contained, these chapters contain information readily available elsewhere, and their presence has made the volume some 100 pages longer than would have been necessary otherwise.

The chapters on enzyme immunoassay are excellent. The coverage is very detailed, and actual experimental protocols abound, as do numerous useful tips which even the most experienced reader might find of value. The emphasis placed upon the advantages afforded by a rigorous understanding of basic theoretical concepts as regards assay design and execution, and the influence of these factors upon results obtained, is especially commendable. Two minor quibbles, though. Firstly, this reviewer has found enzyme-conjugated antibodies from several commercial suppliers to be quite satisfactory, and therefore disagrees with the author's assertion that such reagents should always be prepared in the laboratory. Secondly, one wonders whether greater emphasis should be given to non-specific binding, which may be a major problem in assays which involve immobilization of reactants on solid phases.

Throughout the volume the depth and breadth of coverage of the subject is exceptional. The book should be looked upon as required reading for those performing, or intending to perform, enzyme immunoassays.

J.G. Kenna

Immunoassay Technology, Volume 1

Edited by S.B. Pal

Walter de Gruyter; Berlin, New York, 1985

285 pages. DM 118.00

In the preface to this volume the editor points out, quite rightly, that non-isotopic immunoassay has become an 'established technology', and suggests that the time has come for publication of 'a regular series of review volumes'. Clearly this is intended to be the first issue of such a series. No information on frequency of publication of further volumes is provided. Also lacking are instructions to prospective authors, indicating that contributions are to be invited.

The volume contains six articles, all of which have a strong clinical emphasis although they differ strikingly in scope and content. Two are essentially descriptions of methods, these being an enzyme immunoassay for determination of glucagon in plasma and a fluorescence immunoassay for determination of biopterin and neopterin in urine. A further two articles are reviews of non-isotopic methods for determining steroid hormones, and various constituents in urine, respectively. Also in-

cluded are a general review of the field of luminescence immunoassay, again in the context of measuring compounds in body fluids, and a review of isoelectric focusing which concentrates on problems encountered when analysing clinical samples and methods to overcome them.

The text is clear, illustrations are adequate and all articles are referenced thoroughly, but the articles themselves are unexciting. In particular, one wonders why the two articles which simply describe immunoassay methods have been included, since in both cases it would appear that the methods have been published previously elsewhere.

The volume may prove of interest to clinical biochemists and clinical immunologists, but there is little to interest the basic scientist. Whether this will also be the case for the rest of the series remains to be seen.

J.G. Kenna

Growth Factors in Biology and Medicine

Ciba Foundation Symposium 116

Edited by D. Evered, J. Nugent and J. Whelan

Pitman; London, 1985

283 pages. £27.95

This book consists of a collection of papers presented at the Ciba Foundation on 22–24th January 1985 with the general theme of growth factors. Although relevant to interested physicians and oncologists this is principally a series of biochemical and cell biological research papers. The format is presented papers followed by an edited transcript of the subsequent discussion. This type of arrangement, with the discussion representing 40% of the total pages, only works well if the editors strictly relate the verbal statements to the preceding paper. This they have done expertly with unobtrusive but useful references to figure numbers and cross-references to other papers in the book. Transcribed discussions are sometimes rather hard to follow and appear disjointed without the benefit of seeing the speakers and this problem inevitably occurs here. However, this is more than compensated for by the abundance of new ideas and data that arise.

Several different areas are covered, in some cases by a single paper such as those on NGF, the IGFs and the EGF receptor, and in others by more than one such as the three contributions on different aspects of PDGF, two on protein kinase C and two on haemopoietic growth factors (Michael Stoker in his introduction to the book pleads for less use of acronyms, vainly I'm afraid). The papers vary in style from brief general reviews (NGF, PDGF, protein phosphorylation and haemopoietic growth factors) which are good but naturally contain little unpublished data, to specific reports containing more new information (IGF's, EGF receptor, growth factors in embryogenesis and TGF's). This book generally does not however suffer from problems associated with meeting reports in that the review papers are interesting and well written and the new reports contain strong data.

This book compares well with the recently published rather similar volume from the Company of Cell Biologists, published as a supplement to the Journal of Cell Science, called 'Growth factors: Structure and function' and both should be read by scientists with interests in growth factors and oncology.

W.J. Gullick